



1. Suppose that you need \$ 14500 for a new car which you want to buy in 5 years. In your bank the annual rate is 7% and it is compounded annually. How much money do you have to deposit today to be able to afford your car in 5 years?

2. Solve the following exponential equations:

(a)  $7^{3x+1} = 49^x$

(b)  $2^{x^2-7x+10} = 2^{2x-10}$

(c)  $3^{x^2-3x+2} = 1$

3. Solve the following logarithmic equations:

(a)  $\log_2 1 = \log_2 3x - 4$

(b)  $10^{\log_{10}(x+2)} = x^2 - 4$

(c)  $\log_{10} |x - 3| = \log_{10} 1$

4. Find inverse to the following functions and sketch both (function and its inverse) graphically.

(a)  $y = 1 - 2x$

(b)  $y = \frac{1}{x-2}$

(c)  $y = \ln \frac{x-1}{3}$

5. Decompose the following functions to the most elementary functions.

(a)  $y = (x + 1)^2$

(b)  $y = \frac{1}{x-2}$

(c)  $y = \frac{1}{(x+1)^2}$

**6.**  $f(x) = e^x$ ,  $g(x) = 3x$ ,  $h(x) = \frac{1}{x}$ . Find the following composite functions:

(a)  $f(g(x))$

(b)  $h(h(x))$

(c)  $h(g(f(x)))$